

**Comments On:  
Proposed AB32 Regulation To  
“Reduce Emissions Of Fluorinated  
Gases From Semiconductor  
Operations”**

**4th Public Workshop  
Reducing Fluorinated Gas Emissions From  
Semiconductor & Related Devices Industry  
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# Introduction

- These comments today are being presented on behalf of the Roseville manufacturing facility of NEC Electronics America, Inc.
- We welcome the opportunity to continue our dialog with ARB staff regarding their efforts to prepare a regulation to reduce the semiconductor industry's greenhouse gas emissions in accordance with AB32.
- The Roseville site has a history of strong environmental compliance.
- We are very proud of our many environmental accomplishments.
- This presentation will address our concerns with ARB's proposed regulation, sections 95320-95326, Title 17, CCR.
- Areas of opposition and proposed solutions will be discussed.

# Key Areas Of Opposition

- Proposed emission reduction standard is too aggressive for a 2-year period.
- ARB's use of 2006 to determine an emissions reduction standard ignores any previous reductions made by an affected company.
- Cost of compliance for some companies will not be cost-effective, as required by AB32.
- NEC Electronics America Roseville is opposed to the Tier system. The Tier 1 companies are being tasked with 2/3 of ARB's emissions reduction target.

## Emission Reduction Target Is Too Aggressive

- High capital costs require long term planning. Two years is typically needed just to prepare plans and obtain funding for large projects.
- Some companies may be currently experiencing financial conditions due to the economy. Other agencies may also be requiring expensive investments for new regulations.
- There is no regulatory basis for arbitrarily setting such a short compliance period . 2014 would be more acceptable.
- ARB has heard these concerns, but has chosen to maintain 01-01-2012 as the final compliance date.
- As a result, there is a serious risk that some companies may be forced to close, which will result in “leakage” to another state or country.

## Previous Reductions Are Being Ignored

- ARB stated in previous public meetings that 2006 is being used as the base year for setting their proposed semiconductor industry emission reduction target.
- Those companies that have participated in the EPA's Voluntary PFC Gas Emission Reduction Program via a Memorandum of Understanding (MOU) should be allowed to use their previous emission reductions when calculating compliance. (i.e. 1995 is the base year for MOU companies.)
- The semiconductor industry emission reduction target is far too aggressive. It should be raised from 0.16 MMTCO<sub>2</sub>e to at least 0.22 MMTCO<sub>2</sub>e.
- There is no method in the proposed regulation to allow those companies to get credit for the expensive emission reduction efforts that have already invested in. ARB's economic impact analysis could be used to establish a cap for a company having to implement abatement.

## Cost of Compliance Will Not Be Cost-Effective

- NEC continues to disagree ARB with the results of their calculations for the initial estimates of state-wide cost of compliance. The cost is being grossly underestimated.
- Expensive end-of-pipe abatement will be needed.
- AB32 specifically calls for “cost-effective” controls.
- The proposed regulation conflicts with key sections of the following regulation: California Health & Safety Code, Division 25.5.
  - Section 38560.5(c) establishes a key requirement for discrete early emission reductions: “achieve the maximum technologically feasible and **cost-effective** reductions in greenhouse gas emissions.”
  - Moreover, §38562(b)3 and §38563 gives ARB broad authority to provide “**early reduction credit where appropriate**”.
- ARB’s recently released economic analysis does not address the semiconductor industry.

# No Tiers Are Needed

- The purpose of the tiers serves only to task the largest companies (Tier 1) with 2/3 of ARB's industry emissions reduction target.
- This only serves to punish those companies who have probably already made substantial investments in emission reductions.
- Higher emissions are allowed for smaller companies.
- The Tiers also do not account for the complexity of the products being manufactured. The average number of masking layers per wafer is a common normalizing factor used by the semiconductor industry. The volume of fluorinated gases used per wafer increases with the number of masking layers.
- The average number of masking layers per wafer factor needs to be used in order to avoid penalizing those companies manufacturing more complex products.

# SUMMARY

- As an ISO14001 compliant company, NEC Electronics supports environmental programs. However, this proposed regulation has potentially very high prohibitive costs and has the potential to negatively affect California's semiconductor industry.
- NEC Electronics America urges ARB to seriously consider these comments.
- Most of these comments have been heard in the previous Workshop meetings without any significant changes being made in ARB's approach.
- The proposed regulation will have a detrimental effect on the semiconductor industry, which AB32 expressly forbids with its' call for "cost-effective" controls.
- Reductions of the emissions of fluorinated gases are possible when a reasonable reduction target is set to be completed within a reasonable time period.